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SPECIFICATION FOR DRUMS FOR ELECTRIC CABLES

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May 1983

Indian Standard

SPECIFICATION FOR DRUMS FOR ELECTRIC CABLES

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Indian Standard

SPECIFICATION FOR DRUMS FOR ELECTRIC CABLES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 December 1982, after the draft finalized by the Power Cables Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 The drums on which electric cables are wound play an important role during transport and storage of cables and as such need has been felt to prepare a specification for rationalizing their sizes being used currently.

0.3 In this standard, drum size is indicated by a four digit number, the first two digits indicating the diameter of disc in dm and the last two digits indicating the diameter of barrel in dm (if necessary, value of diameter rounded to next number is taken in order to get four digit number) (*see also* **8.1.1**).

0.4 Recommendations for choosing drums having appropriate barrel diameter for different types of cables are given in Appendix A for the guidance of users. The clearance between the outermost layer of the cable and the edge of the flange should be at least 75 mm or equal to the diameter of the cable whichever is less.

0.5 This standard recognizes the use of mild steel or cast iron for bushes or centre plates used for drums. However, details of cast iron bushes are under consideration.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

SECTION 1 GENERAL

1. SCOPE

1.1 This standard covers requirements for wooden drums for electric cables.

---

*Rules for rounding off numerical values (*revised*).

2. NOMENCLATURE

2.1 For the purpose of this standard, names of various component parts of the drums as given in Fig. 1 shall apply.

SECTION 2 MATERIALS

3. WOODEN COMPONENTS

3.1 The material for wood shall be as classified in IS : 399-1963* to be suitable for light and heavy packing boxes. The material shall be reasonably free from rots, fungus, decay and attacks from termites and rodents. The grains shall be straight as far as possible.

3.2 The wood shall be sound and reasonably free from defects, such as through cracks, knots, warps and splits, that might weaken the component parts of the drums. It shall have no deleterious effect on the cable surface.

4. METAL COMPONENTS

4.1 Clamping studs, washers, bolts and nuts shall be of mild steel. The bushes or centre plates shall be of mild steel or cast iron.

SECTION 3 DIMENSIONS AND CONSTRUCTION

5. DIMENSIONS

5.1 The major dimensions of drums shall be in accordance with Table 1 (*see also* Fig. 1).

5.2 The dimensions of wooden components shall be as specified in Tables 2 and 3.

5.3 The details of metal components (studs, bushes, centre plates, washers, bolts and nuts) shall be as specified in Table 4.

6. CONSTRUCTION

6.1 The drums shall be so constructed as to have required mechanical strength so that the drum flanges and other components do not break in actual use or in storage.

NOTE — The following tests are under consideration:

a) Transverse loading test,
b) Impact test, and
c) Barrel batten test.

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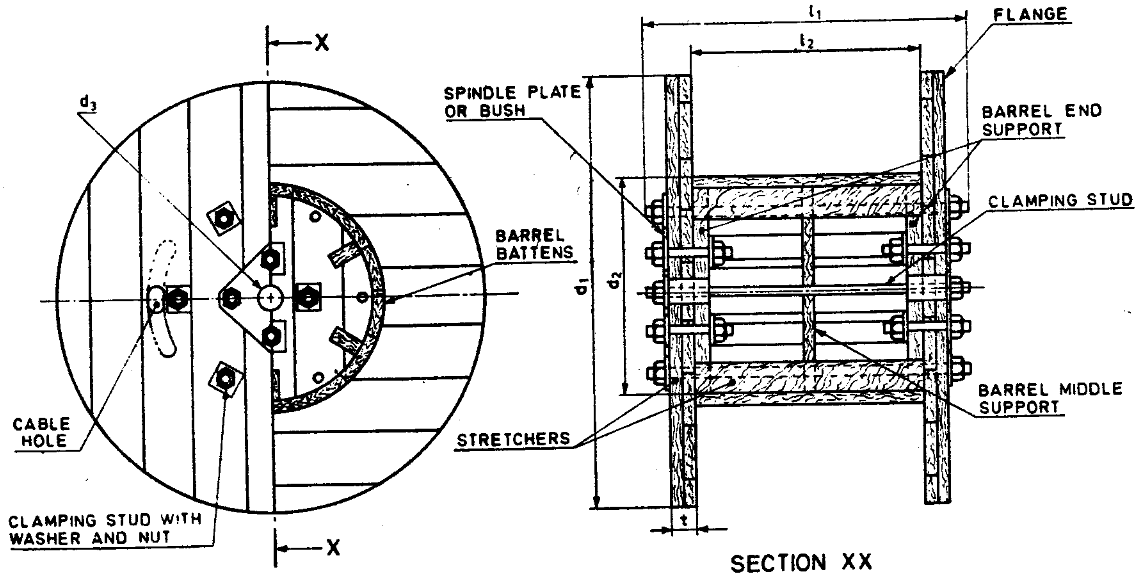
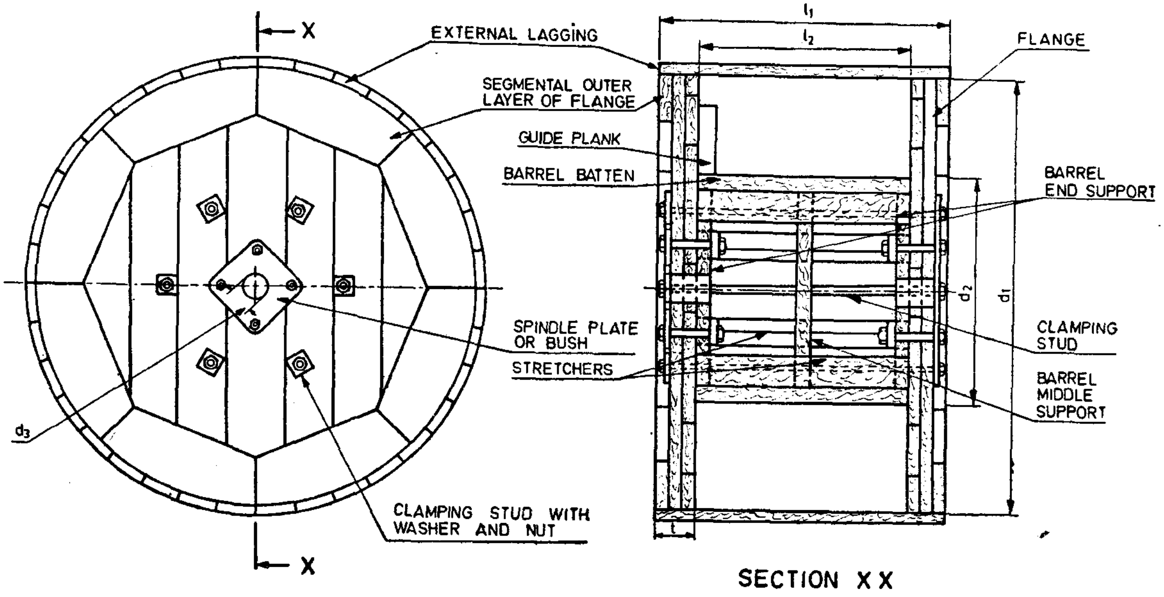
*Classification of commercial timbers and their zonal distribution (*revised*).



l_1 = Overall width
l_2 = Traverse
d_1 = Flange diameter
d_2 = Barrel diameter
d_3 = Centre hole diameter
t = Flange thickness

1A Drum Having 2 — Full Ply Flange Construction



l_1 = Overall width

l_2 = Traverse

d_1 = Flange diameter

d_2 = Barrel diameter

d_3 = Centre hole diameter

t = Flange thickness

1B Drum Having 2-Full Ply Plus 1 Segmental Layer Flange Construction (Shown Complete with External Lagging)

FIG. 1 DRUM NOMENCLATURE

.2 The flanges and the outside surface of the barrel shall be free from rotruding materials or projections or unevenness capable of damaging the able or hands of the operator during rotation of the drum.

.3 **Flanges (Main Discs)** — Flanges up to and including 1 600 mm iameter shall be of 2-ply or 3-ply construction. Flanges having diameter nore than 1 600 mm shall be of two full ply or three full ply or two full ly plus one segmental layer. Each ply shall be nailed at approximately 0° angle for two ply and at 60° angle for three ply construction. The umber of segments where used shall be not less than six. Centre hole nd holes for the studs shall be provided on the flanges.

6.3.1 The widths of the middle planks of the flange shall be as given below:

Flange Diameter	*Minimum Width of Middle Planks*
mm	mm
Up to and including 700	100
Above 700 but up to and including 1 600	150
Above 1 600	200

6.3.2 The width of the planks used for outer segmental layer, measured at the middle of the segment shall be not less than 200 mm.

6.4 Barrel-End Supports (Supporting Discs) — The barrel-end supports shall be of complete circular discs or of various segments. In case of segmental construction, the number of segments shall be the same as number of clamping studs. The barrel-end supports shall be securely fixed to the inside of flanges by nailing.

6.5 Barrel-Middle Support (Middle Core Disc) — The barrel-middle support shall be of complete circular construction of single ply or two ply layers or of various segments. When two layer construction is used each layer shall be fixed at approximately 90° angle to each other. The barrel-middle support is required to be provided only for drums having a traverse of above 1 000 mm.

6.5.1 The diameter of centre hole of barrel-middle support shall be approximately 20 mm larger than the centre hole provided on the flanges.

6.6 Stretchers (Core Carrier Planks) — Stretchers shall be provided for drum sizes 1 206 and above. These shall be fitted in the slots provided on the barrel-end supports and barrel-middle support (where applicable) or shall be nailed on the barrel-end supports and barrel-middle support (where applicable).

6.7 Barrel Battens (Core Filler Planks) — Barrel battens shall be laid side by side to form a closed barrel. All the barrel battens shall be nailed to barrel end supports and to the barrel middle support (where applicable) so that the barrel battens are perpendicular to the barrel end supports and barrel middle support (where applicable).

6.8 Guide Planks — The guide planks shall be provided in case the bottom end of the cable is left inside the drum. The guide planks shall be made up of a number of pieces and shall be fitted on and over the barrels that the cable is not bent excessively. The top and bottom surfaces shall have radial surfaces and chamferred properly in order to avoid damage to the cable surface. The details of guide planks shall be as given in Table 5.

6.9 Cable Hole — The cable hole in accordance with details given in Table 6 shall be provided on one of the flanges in case the bottom end of the cable is to be brought outside the drum. The hole shall be of oval shape and shall be above the barrel and shall pass through the flange in such a manner that there is no abrupt bend at cable end.

There shall be a small groove on the outside of the flange for placing the cable end.

6.10 Nailing — Nails joining the layers of flanges and barrel-end supports and barrel-middle support shall be fixed in a proper concentric circle. The minimum number of nailing circles for various drum sizes shall be as given in Table 7.

6.10.1 The outermost circle of nailing shall be not less than 25 mm or more than 50 mm in radial distance from the edge of the discs.

6.10.2 The approximate number of nails in each nailing circle shall be as given in Table 7 depending upon the size of the drum. The nailing shall be in such a way that their heads are on the inner side of the disc. The nail heads shall be punched well inside the wood. The nail ends protruding on the outside of the discs shall be bent back and clinched.

6.11 Clamping Studs and Washers — The clamping studs fixing the flanges and barrel shall be arranged at a uniform distance between one another and shall be fairly concentric with reference to the drum axis.

6.11.1 The clamping studs shall be fixed with square or round washers and hexagonal nuts.

6.12 Bushes and Centre Plates — Bushes or centre plates shall be fitted on each drum flange for centre hole reinforcement for drum sizes 1 407 and above as specified in Table 4.

6.12.1 In case of bush, it shall be fitted with its flange lying on the outer side of the drum flange with a counter flange or washers on the inner side of the drum flange and fixed with hexagonal bolts with their heads on the inner side of the drum flange.

6.12.2 In case of centre plate, it shall be fitted on the outer side of the drum flange with washers on the inner side of the drum flange and fixed with hexagonal bolts with their heads on the inner side of the drum flange.

6.13 External Lagging (Planking) — The drum wound with the cable shall be closely fitted with the external lagging. The thickness of external lagging shall be as given in Table 3. After fixing external lagging, binder consisting of one (or two) bailing hoop(s) or galvanised steel wire shall be provided over the external lagging on the circumference of each disc.

7. TOLERANCES

7.1 The tolerances in the manufacture of drums shall be as follows:

Particulars		*Tolerance*
Drum flange diameter	Up to and including 1 600 mm	± 20 mm
	Above 1 600 mm	± 30 mm
Flange thickness	Up to 38 mm	± 6 mm
	Above 38 mm	± 9 mm
Barrel diameter	Up to 1 600 mm	± 20 mm
	Above 1 600 mm	± 30 mm
Overall width l_1 and traverse l_2		± 25 mm
Barrel-battens (core filler planks) thickness		± 3 mm
Stretchers (core carrier planks) thickness		± 3 mm
Centre hole diameter (with bush)		$^{-0}_{+2}$ mm
Centre hole diameter (without bush)		$^{-0}_{+5}$ mm

NOTE — The tolerances on thicknesses and widths of other wooden components shall be such that they meet the requirements of above mentioned tolerances.

SECTION 4 MARKING

8. MARKING

8.1 Each drum shall be marked on the inner side of the flange with the following information:

a) Manufacturer's name or trade mark;

b) Drum size; and

c) Serial number of the drum.

NOTE — The requirements of marking of items (a) and (c) are not applicable when the manufacturing of drums forms part of manufacturing activity of the cable manufacturer. In such cases item (b) shall be marked on the outer side of the flange.

8.1.1 Information at **8.1** (b) and (c) may be marked by means of a continuous number consisting of eight digits (plus letter S, where applicable), the first four digits (plus letter S, where applicable) denoting drum size and the remaining digits denoting serial number of the drum.

8.1.2 The drums may also be marked with the Standard Mark.

8.2.2 The use of the Standard Mark is governed by the provisions of Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

SECTION 5 TABLES

TABLE 1 MAJOR DIMENSIONS OF DRUMS

(*Clause* 5.1)

Drum Size	Flange Diameter (d_1)	Barrel Diameter (d_2)	Centre Hole Diameter (d_3)	Overall Width (l_1)		Traverse (l_2)
				A	B	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	mm	mm	mm	mm	mm	mm
0 402	400	200	25	323	—	220
0 503	500	260	25	415	—	310
0 603 S	600	300	25	415	—	310
0 603	600	300	25	515	—	400
0 704	700	350	25	515	—	400
0 803*	800	300	25	665	—	550
0 804 S	800	400	80	515	—	400
0 804	800	400	80	665	—	550
0 806	800	550	80	665	—	550
0 905	900	450	80	690	—	550
1 004 S*	1 000	400	80	715	—	574
1 004	1 000	400	80	855	—	716
1 005	1 000	500	80	715	—	574
1 006	1 000	600	80	715	—	574
1 007 S	1 000	700	80	715	—	574
1 007	1 000	700	80	855	—	716
1 104	1 100	400	80	715	—	574
1 105	1 100	500	80	715	—	574
1 206	1 200	600	80	855	—	716
1 407	1 400	700	80	855	—	716
1 408	1 400	800	80	855	—	716
1 506*	1 500	600	80	1 130	—	940
1 507	1 500	700	80	910	—	716
1 511	1 500	1 050	80	1 360	—	1 170
1 608	1 600	800	80	1 130	—	940
1 610	1 600	1 000	80	1 130	—	940
1 713*	1 700	1 300	80	1 360	1 320	1 170
1 809*	1 800	900	100	1 140	1 100	900
1 810	1 800	1 000	100	1 180	1 140	940

(*Continued*)

TABLE 1 MAJOR DIMENSIONS OF DRUMS — *Contd*

DRUM SIZE	FLANGE DIAMETER (d_1)	BARREL DIAMETER (d_2)	CENTRE HOLE DIAMETER (d_3)	OVERALL WIDTH l_1		TRAVERSE (l_2)
				A	B	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	mm	mm	mm	mm	mm	mm
1 812	1 800	1 200	100	1 180	1 140	940
1 813	1 800	1 300	100	1 410	1 370	1 170
2 008*	2 000	800	100	1 180	1 140	940
2 010*	2 000	1 000	100	1 240	1 200	1 000
2 012	2 000	1 200	100	1 180	1 140	940
2 209*	2 200	900	100	1 420	1 370	1 170
2 212*	2 200	1 200	100	1 350	1 300	1 100
2 214 S	2 200	1 400	100	1 420	1 370	1 170
2 214	2 200	1 400	100	1 550	1 500	1 300
2 216	2 200	1 600	100	1 420	1 370	1 170
2 311*	2 300	1 100	100	1 550	1 500	1 300
2 315	2 300	1 500	100	1 550	1 500	1 300
2 410*	2 400	950	100	1 420	1 370	1 170
2 414*	2 400	1 400	100	1 450	1 400	1 200
2 415	2 400	1 500	100	1 420	1 370	1 170
2 418	2 400	1 800	100	1 420	1 370	1 170
2 616	2 600	1 600	100	1 420	1 370	1 170
2 620	2 600	2 000	100	1 430	1 370	1 170
2 818 S	2 800	1 800	100	1 380	1 320	1 090
2 818	2 800	1 800	100	1 690	1 630	1 400
2 820 S	2 800	2 000	100	1 380	1 320	1 090
2 820	2 800	2 000	100	1 690	1 630	1 400

A = Drum having flange with all full ply.

B = Drum having flange with segmental outer ply.

*Non-preferred size.

NOTE — The suffix letter 'S', appearing with the number denoting drum size in column (1) indicates special size of drum having reduced width.

TABLE 2 DETAILS OF WOODEN COMPONENTS

(*Clause* 5.2)

DRUM SIZE	THICKNESS OF FLANGE (MAIN DISC)	BARREL END (SUPPORTING DISCS OR CORE SEGMENTS)		STRETCHERS (CORE CARRIER PLANKS)		BARREL BATTENS (CORE FILLER PLANKS) THICKNESS	BARREL MIDDLE SUPPORTS (MIDDLE CORE DISCS)	
		Diameter	Thickness	Number, *Min*	Thickness × Width		Diameter	Thickness
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	mm	mm	mm		mm × mm	mm	mm	mm
0 402	30	170	19	—	—	15	—	—
0 503	30	230	19	—	—	15	—	—
0 603 S	30	270	19	—	—	15	—	—
0 603	38	272	19	—	—	15	—	—
0 704	38	312	19	—	—	9	—	—
0 803*	38	250	19	—	—	25	—	—
0 804 S	38	350	19	—	—	25	—	—
0 804	38	350	19	—	—	25	—	—
0 806	38	500	19	—	—	25	—	—
0 905	50	400	19	—	—	25	—	—
1 004 S*	50	350	19	—	—	25	—	—
1 004	50	350	19	—	—	25	—	—
1 005	50	450	19	—	—	25	—	—
1 006	50	550	19	—	—	25	—	—
1 007 S	50	650	19	—	—	25	—	—
1 007	50	650	19	—	—	25	—	—
1 104	50	350	19	—	—	25	—	—
1 105	50	450	19	—	—	25	—	—
1 206	50	550	19	6	32 × 100	25	—	—
1 407	50	650	25	6	32 × 100	25	—	—
1 408	50	750	25	6	32 × 100	25	—	—
1 506*	75	550	25	6	32 × 100	25	—	—
1 507	75	650	25	6	32 × 100	25	—	—
1 511	75	1 000	25	6	32 × 100	25	1 000	38
1 608	75	750	32	6	32 × 100	25	—	—
1 610	75	950	32	6	32 × 100	25	—	—
1 713	75	1 250	32	6	32 × 100	25	1 250	38
1 809*	96	850	32	8	38 × 100	25	—	—
1 810	96	950	32	8	38 × 100	25	—	—
1 812	96	1 150	32	8	38 × 100	25	—	—
1 813	96	1 250	32	8	38 × 100	25	1 250	38

(*Continued*)

TABLE 2 DETAILS OF WOODEN COMPONENTS — *Contd*

DRUM SIZE	THICKNESS OF FLANGE (MAIN DISC)	BARREL END (SUPPORTING DISCS OR CORE SEGMENTS)		STRETCHERS (CORE CARRIER PLANKS,		BARREL BATTENS (CORE FILLER PLANKS) THICKNESS	BARREL MIDDLE SUPPORTS (MIDDLE CORE DISCS)	
		Diameter	Thickness	Number, *Min*	Thickness × Width		Diameter	Thickness
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	mm	mm	mm		mm × mm	mm	mm	mm
2 008*	96	750	38	8	38 × 100	25	—	—
2 010*	96	950	38	8	38 × 100	25	—	—
2 012	96	1 150	38	8	38 × 100	25	—	—
2 209*	96	850	38	8	38 × 120	25	850	38
2 212*	96	1 150	38	8	38 × 120	25	1 150	38
2 214 S	96	1 350	38	8	33 × 120	25	1 350	38
2 214	96	1 350	38	8	38 × 120	25	1 350	38
2 216	96	1 550	38	8	38 × 120	25	1 550	38
2 311*	96	1 050	38	8	38 × 120	25	1 050	38
2 315	96	1 450	38	8	38 × 120	25	1 450	38
2 410*	96	900	38	8	38 × 140	25	900	50
2 414*	96	1 350	38	8	38 × 140	25	1 350	50
2 415	96	1 450	38	8	38 × 140	25	1 450	50
2 418	96	1 750	38	8	38 × 140	25	1 750	50
2 616	96	1 550	38	8	38 × 140	25	1 550	50
2 620	96	1 950	38	10	38 × 140	25	1 950	50
2 818 S	108	1 750	38	10	38 × 140	25	1 750	50
2 818	108	1 750	38	10	38 × 140	25	1 750	50
2 820 S	108	1 950	38	10	38 × 140	25	1 950	50
2 820	108	1 950	38	10	38 × 140	25	1 950	50

*Non-preferred size.

TABLE 3 DETAILS OF EXTERNAL LAGGING

(*Clauses* 5.2 *and* 6.13)

DRUM SIZE	THICKNESS OF EXTERNAL LAGGING, mm
(1)	(2)
From 0 402 Up to and including 0 603	16
From 0 704 Up to and including 1 105	19
From 1 206 Up to and including 2 012	25
From 2 209 Up to and including 2 620	32
From 2 818S Up to and including 2 820	38

TABLE 4 DETAILS OF METAL COMPONENTS

(*Clauses* 5.3 *and* 6.12)

All dimensions in millimetres.

DRUM SIZE	CLAMPING STUDS WITH HEXAGONAL NUTS		SQUARE OR ROUND WASHERS*		MILD STEEL BUSHES					MILD STEEL/CAST IRON CENTRE PLATE						CENTRE HOLE DIAMETER
										Dimensions†			Centre Plate Bolts			
													Number			
	Number	Diameter	Number	Dimensions	Number	Thickness of Sleeve	Dimension of Flange	Number of Bolts	Diameter of Bolts	Number	Square	Triangular Equal Sides	For square plate	For triangular plate	Diameter of Bolts	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
0402	3	12	6	40 × 40 × 4	—	—	—	—	—	—	—	—	—	—	—	25
0503	3	12	6	40 × 40 × 4	—	—	—	—	—	—	—	—	—	—	—	25
0603S	3	12	6	40 × 40 × 4	—	—	—	—	—	—	—	—	—	—	—	25
0603	3	12	6	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	25
0704	3	12	6	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	25
0803‡	3	12	6	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	25
0804S	3	12	6	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
0804	3	12	6	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
0806	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
0905	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1004‡	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1004S	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1005	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1006	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1007S	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1007	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1104	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1105	4	12	8	40 × 40 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1206	6	12	12	65 × 65 × 6	—	—	—	—	—	—	—	—	—	—	—	80
1407	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1408	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1506‡	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1507	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1511	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1608	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1610	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1713‡	6	12	12	65 × 65 × 6	—	—	—	—	—	2	200 × 200	300	8	6	12	80
1809‡	8	16	16	65 × 65 × 6	—	—	—	—	—	2	220 × 220	300	8	6	16	100
1810	8	16	16	65 × 65 × 6	—	—	—	—	—	2	220 × 220	300	8	6	16	100
1812	8	16	16	65 × 65 × 6	—	—	—	—	—	2	220 × 220	300	8	6	16	100
1813	8	16	16	65 × 65 × 6	—	—	—	—	—	2	220 × 220	300	8	6	16	100
2008‡	8	16	16	65 × 65 × 6	—	—	—	—	—	2	220 × 220	—	8	—	16	100
2010‡	8	16	16	65 × 65 × 6	—	—	—	—	—	2	220 × 220	—	8	—	16	100
2012	8	16	16	65 × 65 × 6	—	—	—	—	—	2	220 × 220	—	8	—	16	100
2209‡	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2212‡	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2214S	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2214	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2216	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	9	—	16	100
2311‡	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2315	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2410‡	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2414‡	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2415	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2418	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2615	8	20	16	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2620	10	25	20	80 × 80 × 8	2	5	220 × 220 × 5	8	16	2	250 × 250	—	8	—	16	100
2818S	10	25	20	100 × 100 × 10	2	5	250 × 250 × 5	8	16	2	250 × 250	—	8	—	16	100
2818	10	25	20	100 × 100 × 10	2	5	250 × 250 × 5	8	16	2	250 × 250	—	8	—	16	100
2820S	10	25	20	100 × 100 × 10	2	5	250 × 250 × 5	8	16	2	250 × 250	—	8	—	16	100
2820	10	25	20	100 × 100 × 10	2	5	250 × 250 × 5	8	16	2	250 × 250	—	8	—	16	100

NOTE — Alterntive choice of square washers or round washers, mild steel bushes or mild steel/cast iron centre plates (square or triangular where applicable) is left to the manufacturer when manufacturing of drums forms part of manufacturing activity of the cable manufacturer, otherwise to the purchaser of the drums.

*For round washers the diameter should be the same as the side of the square washers.

†Thickness of centre plates in all cases shall be 5 mm for mild steel and 8 mm for cast iron.

‡Non-preferred sizes.

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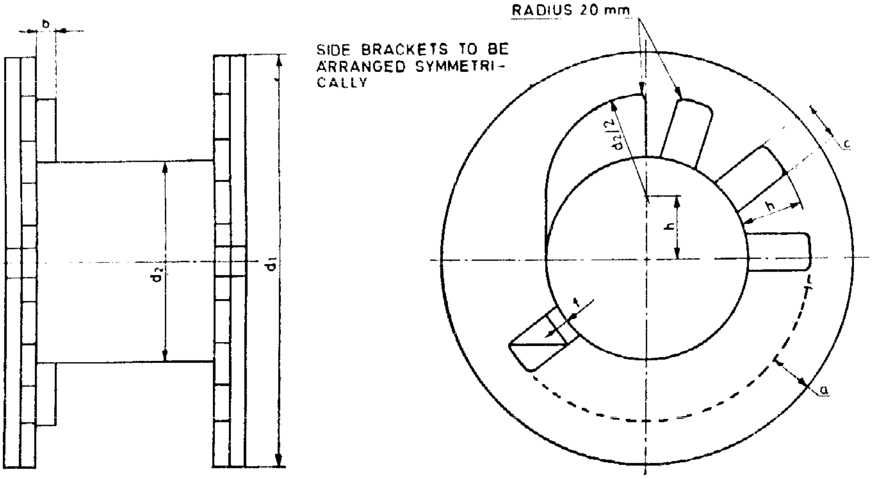
TABLE 5 DETAILS OF GUIDE PLANKS FOR DRUMS

(*Clause* 6.8)

All dimensions in millimetres.



Drum Size	Radial Clearance, *a*	Thickness of Guide Plank, *b*	Width of Side Bracket, *c*	Intake Opening, *f*
(1)	(2)	(3)	(4)	(5)
1 206	100	40	200	75
1 407	100	40	200	75
1 408	100	50	200	75
1 506*	100	50	200	75
1 507	100	50	200	75
1 511	100	50	200	75
1 608	100	50	200	75
1 610	125	65	200	100
1 713*	125	65	200	100
1 809*	125	65	200	100
1 810	125	65	200	100
1 812	125	65	200	100
1 813	125	65	200	100
2 008*	125	65	200	100
2 010	125	65	200	100
2 012	125	65	200	100
2 209*	125	65	250	130
2 212*	125	65	250	130
2 214 S	125	65	250	130

(*Continued*)

TABLE 5 DETAILS OF GUIDE PLANKS FOR DRUMS — *Contd*

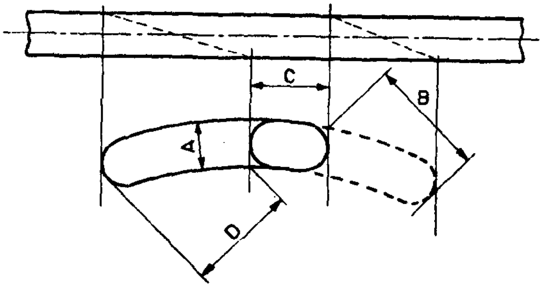
DRUM SIZE (1)	RADIAL CLEARANCE, *a* (2)	THICKNESS OF GUIDE PLANK, *b* (3)	WIDTH OF SIDE BRACKET, *c* (4)	INTAKE OPENING, *f* (5)
2 214	125	65	250	130
2 216	125	90	250	130
2 311*	125	90	250	130
2 315	125	90	250	130
2 410*	125	90	250	130
2 414*	125	90	250	130
2 415	125	90	250	130
2 418	125	100	250	130
2 616	150	90	250	130
2 620	150	100	250	130
2 818 S	150	100	250	130
2 818	150	100	250	130
2 820 S	150	100	250	130
2 820	150	100	250	130

*Non-preferred size.

TABLE 6 DETAILS OF CABLE HOLE

(*Clause* 6.7)

All dimensions in millimetres.



DRUM SIZE (1)	*A* (2)	*B* (3)	*C* (4)	*D* (5)
Up to and including 0 905	40	120	45	160
Above 0 905 up to and including 1 608	65	190	70	260
Above 1 608 up to and including 2 012	90	270	95	360
Above 2 012 up to and including 2 415	115	350	125	460
Above 2 415	125	380	135	500

TABLE 7 APPROXIMATE NUMBER OF NAILS FOR EACH NAILING CIRCLE

(*Clauses* 6.10 *and* 6.10.2)

DRUM SIZE	FLANGE (MAIN DISC)						BARREL MIDDLE SUPPORT (MIDDLE CORE DISC)				
	Minimum Number of Circles	Number of Nails for Each Circle					Minimum number of circle	Number of Nails for Each Circle			
		First circle	Second circle	Third circle	Fourth circle	Fifth circle		First circle	Second circle	Third circle	Fourth circle
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0 402	2	12	24	—	—	—	—	—	—	—	—
0 503	2	12	24	—	—	—	—	—	—	—	—
0 603 S	2	12	24	—	—	—	—	—	—	—	—
0 603	2	12	24	—	—	—	—	—	—	—	—
0 704	2	12	24	—	—	—	—	—	—	—	—
0 803*	2	18	36	—	—	—	—	—	—	—	—
0 804 S	2	18	36	—	—	—	—	—	—	—	—
0 804	2	18	36	—	—	—	—	—	—	—	—
0 806	2	18	36	—	—	—	—	—	—	—	—
0 905	2	18	36	—	—	—	—	—	—	—	—
1 004 S*	3	18	18	36	—	—	—	—	—	—	—
1 004	3	18	18	36	—	—	—	—	—	—	—
1 005	3	18	18	36	—	—	—	—	—	—	—
1 006	3	18	18	36	—	—	—	—	—	—	—
1 007 S	3	18	18	36	—	—	—	—	—	—	—
1 007	3	18	18	36	—	—	—	—	—	—	—
1 104	3	18	18	36	—	—	—	—	—	—	—
1 105	3	18	18	36	—	—	—	—	—	—	—
1 206	3	18	18	36	—	—	—	—	—	—	—
1 407	3	18	36	36	—	—	—	—	—	—	—
1 408	3	18	36	36	—	—	—	—	—	—	—
1 506*	4	24	48	48	48	—	—	—	—	—	—
1 507	4	24	48	48	48	—	—	—	—	—	—
1 511	4	24	48	48	48	—	3	24	48	24	—
1 608	4	24	48	48	48	—	—	—	—	—	—
1 610	4	24	48	48	48	—	—	—	—	—	—
1 713*	4	24	48	48	48	—	3	24	48	24	—
1 809*	4	24	48	48	48	—	—	—	—	—	—
1 810	4	24	48	48	48	—	—	—	—	—	—
1 812	4	24	48	48	48	—	—	—	—	—	—
1 813	4	24	48	48	48	—	3	24	48	24	—
2 008*	4	18	36	36	72	—	—	—	—	—	—
2 010*	4	18	36	36	72	—	—	—	—	—	—
2 012	4	18	36	36	72	—	—	—	—	—	—
2 209*	4	18	36	36	72	—	3	24	48	24	—
2 212*	4	18	36	36	72	—	3	24	48	24	—
2 214 S	4	18	36	36	72	—	3	24	48	24	—
2 214	4	18	36	36	72	—	3	24	48	24	—
2 216	4	18	36	36	72	—	3	24	48	24	—
2 311*	4	18	36	36	72	—	3	24	48	24	—
2 315	4	18	36	36	72	—	3	24	48	24	—
2 410*	5	18	36	36	72	72	3	24	48	24	—
2 414*	5	18	36	36	72	72	3	24	48	24	—
2 415	5	18	36	36	72	72	3	24	48	24	—
2 418	5	18	36	36	72	72	4	24	48	48	24
2 616	5	18	36	36	72	72	3	24	48	24	—
2 620	5	18	36	36	72	72	4	24	48	48	24
2 818 S	5	18	36	72	72	72	4	24	48	48	24
2 818	5	18	36	72	72	72	4	24	48	48	24
2 820 S	5	18	36	72	72	72	4	24	48	48	24
2 820	5	18	36	72	72	72	4	24	48	48	24

*Non-Preferred size.

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APPENDIX A

(*Clause* 0.4)

RECOMMENDED MINIMUM BARREL DIAMETER OF DRUM FOR DIFFERENT TYPES OF CABLES*

Type of Cable	*No. of Cores*	*Voltage Grade* kV	*Minimum Barrel Diameter* d_2
Elastomer, PVC and XLPE insulated	Single core	Up to and including 11	15 *D*
		Above 11	20 *D*
	Multi-core	Up to and including 1·1	12 *D*
		Above 1·1	15 *D*
Paper insulated	Singe-core	Up to and including 11	20 *D*
		Above 11	25 *D*
	Multi-core	Up to and including 11	15 *D*
		Above 11	20 *D*

D = Overall diameter of the cable.

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*Cables for fixed installation. For flexible cables, suitable barrel diameter may be taken as recommended by the cable manufacturer.

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
Telephones: 331 01 31, 331 13 75
Telegrams: Manaksanstha
(Common to all Offices)

Regional Offices:	*Telephone*
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	331 01 31 331 13 75
*Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	36 24 99
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	2 18 43 3 16 41
Southern : C. I. T. Campus, MADRAS 600113	41 24 42 41 25 19 41 29 16
†Western : Manakalaya, E9 MIDC, Marol, Andheri (East), BOMBAY 400093	6 32 92 95

Branch Offices:	
'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMADABAD 380001	2 63 48 2 63 49
‡Peenya Industrial Area 1st Stage, Bangalore Tumkur Road BANGALORE 560058	38 49 55 38 49 56
Gangotri Complex, 5th Floor, Bhadbhada Road, T. T. Nagar, BHOPAL 462003	6 67 16
Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002	5 36 27
53/5, Ward No. 29, R.G. Barua Road, 5th Byelane, GUWAHATI 781003	3 31 77
5-8-56C L. N. Gupta Marg (Nampally Station Road), HYDERABAD 500001	23 10 83
R14 Yudhister Marg, C Scheme, JAIPUR 302005	6 34 71 6 98 32
117/418 B Sarvodaya Nagar, KANPUR 208005	21 68 76 21 82 92
Patliputra Industrial Estate, PATNA 800013	6 23 05
T.C. No. 14/1421, University P.O., Palayam TRIVANDRUM 695035	6 21 04 6 21 17

Inspection Offices (With Sale Point):	
Pushpanjali, First Floor, 205-A West High Court Road, Shankar Nagar Square, NAGPUR 440010	2 51 71
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	5 24 35

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*Sales Office in Calcutta is at 5 Chowringhee Approach, P. O. Princep Street, Calcutta 700072 — 27 68 00

†Sales Office in Bombay is at Novelty Chambers, Grant Road, Bombay 400007 — 89 65 28

‡Sales Office in Bangalore is at Unity Building, Narasimharaja Square, Bangalore 560002 — 22 36 71

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